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(11) **EP 0 605 630 B1**

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
07.02.2001 Bulletin 2001/06

(21) Application number: **92921193.6**

(22) Date of filing: **25.09.1992**

(51) Int Cl.7: **G06K 5/00, G06K 7/10,
G06K 17/00**

(86) International application number:
PCT/US92/08210

(87) International publication number:
WO 93/06564 (01.04.1993 Gazette 1993/09)

(54) **INTEGRATED PORTABLE DEVICE FOR POINT OF SALE TRANSACTIONS**

INTEGRIERTE TRAGBARE VORRICHTUNG FÜR VERKAUFSSTELLEN-TRANSAKTIONEN

**DISPOSITIF PORTATIF INTEGRE POUR LE TRAITEMENT DE TRANSACTIONS AU POINT DE
VENTE**

(84) Designated Contracting States:
BE DE FR GB LU NL

(30) Priority: **27.09.1991 US 767270**

(43) Date of publication of application:
13.07.1994 Bulletin 1994/28

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EP 0 605 630 B1

Description

TECHNICAL FIELD

[0001] The present invention relates in general to portable devices for data collection. More particularly, the present invention pertains to devices for transacting credit card sales as portable, handheld point of sale terminals. More specifically, the present invention relates to devices which provide all functions necessary for processing a credit card sales transaction remote from a conventional checkout register, including a credit card reader, barcode scanner, receipt printer, transaction approval communicator and controlling processor.

BACKGROUND ART

[0002] Data collection devices whose primary or exclusive function is as a point of sale (hereinafter POS) terminal are known and in recent years have become quite sophisticated, including a variety of functions to facilitate credit card sales transactions. For example, POS terminals have provided readers for reading customer information from the credit card, barcode scanners for automatically entering product information from barcodes on products, their label or packaging, keyboards for entering customer personal identification numbers and other transaction information and commands, displays, receipt printers, and telephone or computer links to obtain transaction approval.

[0003] Many businesses accepting payment by credit card, especially those engaged in retail sales or services, have found it desirable to employ less expensive and more flexible portable POS terminals to process credit card transactions for more expeditious customer checkout, and to address peak customer volume, reduce traffic at congested checkout counters, reduce capital equipment expenditures, provide additional, easily relocatable temporary checkout registers, and allow additional order-entry terminals for products presently unavailable at the point of sale, among other reasons. Invariably, however, existing POS terminals intended for portable operation fail to provide all functions necessary to facilitate credit card transaction processing by a portable handheld POS terminal. Moreover, it is also evident that existing POS terminals have not begun to address component arrangement to facilitate handheld operation.

[0004] For example, US Patent No. 4,722,054 discloses an input system for a POS terminal having a portable unit which provides a card reader through which the customer may pass a credit card and a keypad into which a customer may input a personal identification number. The customer then returns the portable unit to the sales counter, where a salesperson connects it to a repeater to transmit that information to a stationary controller. Information on the purchased products must be manually entered into the stationary controller by the

salesperson. In much the same manner, the unattached keypad shown in US Patent No. 4,967,366 only allows the remote entry of the customer's personal identification number; all other transaction information must be still entered into the fixed, POS authorization controller.

[0005] Another POS terminal, the Model E 232 Electronic Payment Terminal manufactured by Electronique Serge Dassault of St-Cloud Cedex, Franz, provides for magnetic card reading, a keypad, a readout screen and a printer to generate a receipt. Intended for electronic fund transfer authorization, this device not only does not include a barcode scanner, it also does not permit manual entry of purchasing product identification.

[0006] WO 87/06377 details a transaction monitoring and security control system. One element of this system are handheld portable transaction monitoring units which are used to record transaction data from the sale of articles in lockable containers.

[0007] US 4,706,095 discloses a portable thermal label printer, which may be carried by an operator in use. A pen or touch scanner is used in this device for data input, which the operator needs to hold.

[0008] A portable checkout system is disclosed in EP 0 390 448 which is supported on the handles of a shopping cart. The operator scans by passing articles over the system in a similar manner to a conventional checkout.

[0009] Thus, despite the increased popularity of the handheld POS terminal, no such terminal has been provided that provides all the necessary functions to allow the transaction to be completed at a location remote from stationary POS terminals, while simultaneously arranging components to facilitate handheld use.

SUMMARY OF THE INVENTION

[0010] It is, therefore, an object of the present invention to provide a portable, handheld data collection terminal including all necessary functions to facilitate and complete a point of sale credit card transaction.

[0011] It is another object of the present invention to provide a device, as set forth above, wherein component arrangement in the device is well-balanced, allowing hands-free scanning operation.

[0012] It is still another object of the present invention to provide a device, as set forth above, wherein component arrangement in the device makes supporting the device with one hand comfortable and relatively effortless.

[0013] These and other objects and advantages of the present invention over existing prior art forms will become more apparent and fully understood from the following description in conjunction with the accompanying drawings.

[0014] In general, a portable device for processing point of sale transactions embodying the concepts of the present invention includes a housing means; reader means for reading credit card information, said reader

means being carried by the housing means; scanner means for generating a scanning beam and scanning product identification information with the beam; printer means for printing a customer receipt; and processor means within the housing for receiving the credit card information and the product identification information and controlling the printer means; characterised in that the portable device further comprises: a means for furnishing at least the credit card information read by the reader means to obtain transaction approval; the means for furnishing being controlled by the processor means; and an attachment means for fixing the housing means onto a user or the user's clothing in an operational orientation which allows hands-free scanning operation by the user; and in that the scanner means is carried by and oriented in relation to the housing means at a location such that when the housing means is in said hands-free scanning operational orientation the scanning beam is projected substantially away from the eyes of the user; and the printer means is carried by and oriented in relation to the housing means at a location such that when the housing means is in said hands-free scanning operational orientation the customer receipt printed by the printer means is visible to the user.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Fig. 1 is a top perspective view of an exemplary device in accordance with the present invention.

[0016] Fig. 2 is a vertical sectional view of the exemplary device shown in Fig. 1 taken substantially along line 2--2 shown in Fig. 1.

[0017] Fig. 3 is a rear view of the exemplary device shown in Fig. 1 taken substantially along 3--3 shown in Fig. 2 showing the scanner window and paper holder.

[0018] Fig. 4 is a bottom perspective view of the exemplary device shown in Fig. 1, depicting a receipt cad- dy in exploded view format.

[0019] Fig. 5 is prospective view of an exemplary pa- per holder assembly.

[0020] Fig. 6 is a block diagram of the functional components of the exemplary device shown in Fig. 1 and a device for obtaining credit card transaction approval including a transceiver for communication with the device of the present invention.

PREFERRED EMBODIMENT FOR CARRYING OUT THE INVENTION

[0021] Fig. 1 presents in perspective an exemplary portable device in accordance with the present invention, generally indicated by the numeral 10, that within a single housing 20 integrally furnishes all functions necessary to complete a credit card transaction as a POS terminal and facilitate handheld operation. Device 10, best seen overall in Figs. 1 and 2, the latter of which presents vertical sectional view of device 10 taken substantially along line 2--2 shown in of Fig. 1, may be made

of several separate components furnishing various functions: magnetic card reader 40, first data entry key- board 50, second data entry keyboard 60, barcode scanner 70, display 80, printer assembly 90, communi- cations assembly 110 and processor assembly 130. Housing 20 may be formed by molding or other accept- able means of a suitable material such as a rigid plastic suitable to integrally carry all the components in a sub- stantially rectangular block having a top surface 21, a bottom surface 22, a first end 23 and a second end 24. For reasons which will become more apparent hereinafter, a portion of the top surface 21 of housing 20 is sloped or tilted upward moving from the first end 23 to the second end 24, as shown at 25. The width of housing 20 should be about what may be comfortably grasped in a human operator's hand, less than about four inches (10.16 cm).

[0022] Magnetic card reader 40 may be any conven- tional reader suitable for reading credit card information encoded on a magnetic credit card 41 (Fig. 6) and car- ried and mounted by means not relevant hereto within housing 20 substantially adjacent to the first end 23 of housing 20 so as to allow an operator, whether a sales- person or customer, to wipe the magnetic stripe of the card across the exposed reading head 42 of magnetic card reader 40, as further discussed below. Of course, where credit card 41 employs a different information en- coding method, such as optical or electrical, card reader 40 may be appropriately selected to respond to such other encoding method. A substantially planer card guide 43 for directing credit card 41 and its magnetic stripe into operative engagement with reading head 42 may be furnished and connected to housing 11 as with flat head screws 44.

[0023] First data entry keyboard 50 may be a conven- tional data entry mechanism, such as a keyboard with raised, travel-tactile keys, suitable for entry of customer information and, optionally, device commands. Key- board 50 is carried and mounted by means not relevant hereto within housing 20 substantially adjacent to the first end 23 of housing 20 so as to allow the operator to make entries at the top surface 21 of housing 20, and is preferably relatively thin to preserve as much space as possible within housing 20.

[0024] Second data entry keyboard 60 also may be a conventional data entry mechanism, but where custom- er receipts are to be signed by the customer atop key- board 60, is a substantially flat preferably membrane keyboard having a mylar, customizable, user-inter- changeable keypad cover. Keyboard 60 may be suitable for entry of additional customer or other information, and is carried and mounted, again by means not relevant hereto, within housing 20 substantially adjacent to key- board 50 so as to allow the operator to make entries at the top surface 21 of housing 20. A second keyboard is not essential to the successful operation of device 10 as explained hereinafter; however, a second keyboard may be advantageously utilized for primarily alphabetic and

preselectable command function input while the first keyboard may be employed for primarily numeric and limited query response.

[0025] Barcode scanner 70 may be a compact mechanism for facilitating acquiring information about the item(s) the customer wishes to purchase. It may be a diode laser scanning module such as that available through Photographic Sciences Corp of Webster, New York. Optically scannable barcodes, now almost always placed on retail and inventory product, provide a unique product identification. As shown diagrammatically in Fig. 6, barcode scanner 70 generates a light scanning beam 71 for striking the barcode 72 applied to a product 73 to be purchased, its label or packaging. Barcode scanner 70 is carried within housing 20 by suitable means (not shown or relevant herein) such that the light scanning beam 71 is projected outwardly and upwardly from the upwardly inclined second end 24 of housing 20 through a light transparent window 74 (best seen in Figs. 2 and 3). This orientation of light scanning beam 71 greatly enhances the ease with which the operator of device 10 may quickly and automatically identify all products to be purchased, as will be further explained hereinbelow.

[0026] Display 80 may be any conventional low-power consumption display such as a liquid crystal display for visual depiction of operating mode status, operator prompts, or any information acquired during the POS transaction. Display 80 may be carried and mounted by means not relevant hereto within housing 20 so that its display is viewable through a window in the upward sloping portion 25 of top surface 21.

[0027] Printer assembly 90 may include any conventional receipt printer 91 able to print a narrow customer receipt in duplicate original, one copy of which is retained by the operator and the other given to the customer, a paper exit cover 92 and a printer paper holder 93. One suitable compact impact receipt printer 91 capable of printing 24 characters per line on 2.26 inch (5.74 cm) wide two-ply paper is dot matrix printer Model M-180 Ultra Small-Sized Printer available from Epson America Inc. of Torrance, California. Receipt printer 91 is carried within and mounted by means not relevant hereto to housing 20 such that paper exiting receipt printer 91 passes directly to paper exit cover 92 described further hereinafter. The width of receipt printer 91 may require housing 20 to include slight side protuberances 98 for accommodation, as shown in Figs. 1 and 4.

[0028] Paper exit cover 92, best shown in Figs. 1 and 2, is mounted in the top surface 21 of housing 20 between the inclined portion 25 and keyboard 60, and includes two parallel flanges 94 forming a guide channel 95 for directing the printer paper 96 out of device 10, and a serrated cutting edge 97. Printer paper holder 93, best depicted in Figs. 2 and 5, includes a plate 100 contoured to removably, matingly engage the lower portion of the second end 24 of housing 20 and a portion of the

bottom surface 22 of housing 20 nearby the second end 24, posts 101 to carry a roll of printer paper 96, and an angled paper guide 102 for optimally directing printer paper 96 into paper receipt printer 91. A plurality of interchangeable plates 100 may be formed with sufficient curvature to receive rolls of printer paper 96 of different diameter, as may be desired by the operator and as shown in phantom in Fig. 2. An interlock 103 may be integrally formed in plate 100 to allow the requisite removable, mating engagement with housing 20. The side edges of paper guide 102 may be made slightly wider than that of printer paper 96 sufficient to fold over and furnish paper edge guides 104 for more readily directing printer paper 96 into the printhead of receipt printer 91.

[0029] Prior to initial operation, and anytime the supply of receipt paper 91 is substantially depleted, the operator may install or replenish the supply by applying slight pressure on plate 100 under interlock 103 and removing the printer paper holder from its operational position. A new roll of printer paper 96 is placed between posts 101, and the free end of printer paper 96 inserted through paper guide 102. Thereafter plate 100 is reinserted into housing 20, placing the free end of printer paper 96 into receipt printer 91, and a preselected keyboard button actuating the paper feed by receipt printer 91 depressed until printer paper 96 extends through guide channel 95 and out past serrated cutting edge 97. Device 10 is then ready to print customer receipts.

[0030] Processor 130 may include any conventional central processing unit (CPU) 131, microprocessor or microcomputer having sufficient capacity to control operation of device 10, memory 132 to retain the control program and an input/output circuit 133 for receiving and conditioning all control and data signals.

[0031] Communications assembly 110 allows device 10 to obtain approval of credit card transactions, and may include, alternatively or in combination, the components necessary to effect several different methods of obtaining such approval. For example, device 10 may include a conventional radio frequency transceiver 111, preferably employing spread spectrum modulation, to send the information necessary for approval to a base station 112 including a like transceiver 113, central processing unit 114, memory 115 and input/output circuit 116 connected to a telephone line. Base station 112 will call the credit card verification telephone number, forward the necessary information, and receive and radio back to device 10 approval or disapproval. If desired additional memory 117 may be included within communications assembly 110 to store the information necessary for approval and transmit all such information in one or more larger data batches, instead of transmitting each piece of information as it is read, scanned or entered in device 10. Data jacks suitable for direct serial data transmission may be provided in both device 10 and base station 112, and device 10 and base station 112 plugged together to effect transfer. A modem 118 and telephone jack may be installed within device 10,

and device 10 plugged directly into the public telephone network to obtain transaction approval. Communications assembly 110 may be carried within and mounted by means not relevant hereto to housing 20 substantially adjacent to magnetic card reader 40 underneath keyboard 50.

[0032] Device 10 may include a caddy 140 to facilitate signature of the customer receipt and temporarily store the operator's copy of the signed receipt. One suitable caddy 140 is illustrated in partial exploded form in Fig. 4 where a five-sided, substantially planar tray only slightly narrower than the width of device 10 is seen to include four corner hooks 141 for removable, sliding engagement with the bottom surface 22 of housing 20, thereby providing a receipt storage chamber 142. The height of caddy 140 may be selected by the manufacturer, and holders having a variety of heights may be made available, but a shallow depth of about 3/16 inch (0.48 cm) is believed to provide adequate storage capacity for many applications. An aperture 143 through which signed customer receipts may be inserted into holder 141 may be formed at the end closest to the first end 23 of housing 20, and a receipt holding recessed flange 144 integrally formed into the end of caddy 140 closest to the second end 24 of housing 20 with a very small clearance above the preferably recessed top surface of caddy 140. When a customer receipt is printed and ready for signature, the operator of device 10 may turn it over, slip a narrow end of the customer receipt under recessed flange 144, securing the receipt by interference fit and providing a hard, flat surface for signature by the customer. A raised flange (not shown) also may be integrally formed into housing 20 extending from top surface 21 between the keyboard 50 and keyboard 60 such that the customer receipt is positioned over the flat keyboard 60 for signature, and keyboard 60 selectively, temporarily deactivated during such signature.

[0033] Fig. 4 also presents two mechanisms for carrying of device 10 by the operator. The first mechanism is a somewhat s-shaped, flexible clothing (including belt) hook 146 that may be integrally formed with the card guide 43 so that it extends out from the center thereof along the bottom surface 22 of housing 20. The second mechanism is an adjustable neck strap 147 the ends of which are secured to the opposite ends of a closure bar 148, which is in turn slid under clothing hook 146. Closure bar 148 may be made to extend beyond the width of device 10 to facilitate separation of closure bar 148 from device 10. Carry device 10 with such mechanisms allows device 10 to be hung from the operator's clothing in a vertical orientation with the first end 23 closest to the operator's head and the second end 24 furthest therefrom whether device 10 is suspended from the operator's clothing or from the neck strap positioned around the operator's neck. In such a position the operator will have both hands free for other operations and device 10 will be stabilized by the front of the operator's body.

[0034] A self-contained energy source such as batteries 149 are carried within and mounted by means not relevant hereto to housing 20 between communications assembly 110 and receipt printer 91 underneath keyboard 60.

[0035] Operation of device 10 is straightforward. For purposes of explanation it shall be assumed that a supply of printer paper 96 is installed within device 10, device 10 is transmitting necessary information to base station 112 for transaction approval, and a customer has approached the operator with several products to be purchased in a credit card transaction, all as discussed above.

[0036] First, allowing device 10 to hang vertically free from the operator's clothing or neck, the operator may use both hands to guide the products to be purchased so that barcodes thereon pass beneath barcode scanner 70. The angular orientation of the upward sloping portion 25 of top surface 21, which for this example is believed to be about 30 degrees, positions the scanner window at an ideal angle to facilitate scanning product barcodes and simultaneously allow the operator to view display 80. In essence, this incline allows the operator's hands to remain free while operating device 10.

[0037] Once all products to be purchased have been scanned, and at any time during operation when keyboard input is required or desired, the operator may use one hand to lift device 10 in its middle and the other hand to press the desired keys. The arrangement of components within device 10 provides a uniform distribution of weight and makes supporting device 10 with one hand comfortable and relatively effortless.

[0038] At any convenient time, but most likely either before or after scanning is complete, the operator, while allowing device 10 to hang free, may use one hand to pass the customer's charge card by magnetic card reader 40 and, if desired, use the other hand to lightly secure device 10 from any slight lateral motion.

[0039] Thereafter, the operator may package the purchased products during which time device 10 will most likely receive a transaction approval from base station 112 and automatically print a customer receipt. The operator then tears off the customer receipt, places it under recessed flange 144 atop receipt caddy 140, and requests that the customer sign it. After it has been signed, the two-ply customer receipt is removed, a copy handed to the customer or placed in the products package, and the operator's copy passed through aperture 143 into chamber 142. At this juncture the operator and device 10 are ready to process another transaction. At any convenient time caddy 140 may be removed and all receipts in chamber 142 withdrawn.

[0040] In addition to the aspects of the present invention noted above, other alternatives and features should now be apparent. For example, in the preferred embodiment shown and described herein the angle of sloping portion 25 of top surface 21 is about 30 degrees. However, it should be apparent to one skilled in the art, that

other values are possible. Still other modifications that should be understood embrace using any suitable form of modulation in communications assembly 110, including infrared where there exists a clear line of sight to base station 112, and the substitution of only additional memory 117 for communications assembly 110. In the later instance, additional memory 117 will retain all information necessary for transaction approval.

Claims

1. A portable device (10) for processing point of sale transactions, the portable device (10) having a plurality of components comprising:

housing means (20);
 reader means (40) for reading credit card information; said reader means being carried by the housing means (20);
 scanner means (70) for generating a scanning beam and scanning product identification information with the beam;
 printer means (90) for printing a customer receipt; and
 processor means (130) within the housing (20) for receiving the credit card information and the product identification information and controlling the printer means (90);

characterised in that:
 the portable device (10) further comprises:

a means for furnishing (110) at least the credit card information read by the reader means (40) to obtain transaction approval; the means for furnishing (110) being controlled by the processor means (90); and
 an attachment means (146, 147) for fixing the housing means (20) onto a user or the user's clothing in an operational orientation which allows hands-free scanning operation by the user; and in that
 the scanner means (70) is carried by and oriented in relation to the housing means (20) at a location such that when the housing means (20) is in said hands-free scanning operational orientation the scanning beam is projected substantially away from the eyes of the user; and
 the printer means (90) is carried by and oriented in relation to the housing means (20) at a location such that when the housing means (20) is in said hands-free scanning operational orientation the customer receipt printed by the printer means (90) is visible to the user.

2. A portable device (10) for processing point of sale

transactions, as set forth in claim 1, further including:

display means (80) for displaying selected among said credit card information and said product identification information, said display means (80) being carried within said housing (20) at a location such that when said housing (20) is in said hands-free scanning operational orientation said display means (80) is visible to the user.

3. A portable device (10) for processing point of sale transactions as set forth in either of claims 1 or 2, further comprising:

data entry means (50, 60) for entering customer and product information, said data entry means (50, 60) being carried by the housing (20).

4. A portable device (10) for processing point of sale transactions, as set forth in claim 3 when dependent on claim 2, in which a paper exit means (92) is included in said housing (20) between said data entry means (50, 60) and said display means (80) and is adapted for receiving an end of a paper roll exiting the printer means.

5. A portable device (10) for processing point of sale transactions, as set forth in claim 4, in which the paper exit means (92) is a paper exit cover attached to the housing (20).

6. A portable device (10) for processing point of sale transactions, as set forth in claim 3, in which the housing (20) includes a bottom wall (22), and in which at least a portion of the printer means (90) is interposed between the data entry means (50, 60) and said bottom wall (22).

7. A portable device (10) for processing point of sale transactions, as set forth in claims 1 to 6, in which the housing (20) includes removable printer paper holder means (93) adapted for holding a supply of paper for said printer means (90) and for directing the paper into said printer means (90).

8. A portable device (10) for processing point of sale transactions, as set forth in claims 3 to 7 when dependent on claim 3, in which the housing (20) includes a top wall (21), and in which the data entry means (50, 60) is a keyboard carried by said top wall (21).

9. A portable device (10) for processing point of sale transactions as set forth in claims 2 to 6 wherein:

said housing (20) includes a top surface (21), a bottom surface (22), a first end (23) and a second end (24);
 the second end (24) having a first portion and

a second portion; and printer paper holder means (93) carried by the housing (20) adjacent the printer (90).

10. A portable device (10) for processing point of sale transactions as set forth in claim 9 wherein:
the scanner means (70) is carried by the housing and is accessible to the user when said housing is stabilised in an operational orientation which allows hands-free scanning operation, and is adjacent the second portion of the second end (24). 5
11. A portable device (10) for processing point of sale transactions, as set forth in claims 9 or 10, in which the printer paper holder means includes a substantially planer paper guide (102) for directing the paper into the printer. 10
12. A portable device (10) for processing point of sale transactions, as set forth in claim 11 when dependent on claim 3, in which the paper guide (102) is positioned on the portable paper holder means adjacent the printer (90), and the printer paper holder means (93) is adapted to retain a paper roll at least partially under the data entry means (50, 60). 15
13. A portable device (10) for processing point of sale transactions, as set forth in claims 9 to 12, in which the printer paper holder means includes a plate (100) contoured to matingly engage the first portion of said second end (24) of said housing (20) and a portion of said bottom surface (22) of said housing (20) nearby said second end (24), said plate (100) being curved to carry a substantially cylindrical roll of a supply of paper of a preselected maximum diameter. 20
14. A portable device (10) for processing point of sale transactions, as set forth in claims 9 to 13 when dependent on claim 2, wherein said display means (80) is positioned on the opposite side of the printer as the printer paper holder means (93). 25
15. A portable device for processing point of sale transactions, as set forth in claims 9 to 14 when dependent on claim 2, in which the display means (80) is angularly oriented upwardly and away from the printer means (90), and substantially parallel to the scanner means (70) such that when the housing is in the operational orientation, said display means (80) is visible to the user. 30

Patentansprüche

1. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen, wobei die tragbare Vorrichtung (10) eine Vielzahl von Komponenten wie folgt

aufweist:

ein Gehäuse (20);
ein Lesemittel (40) zum Lesen von Kreditkarteninformationen, wobei das Lesemittel durch das Gehäuse (20) getragen wird;
ein Scanmittel (70) zur Erzeugung eines Abtaststrahls und zum Scannen von Produktidentifikationsinformationen mit dem Strahl;
ein Druckermittel (90) zum Ausdrucken eines Kundenbeleges; und
ein Prozessormittel (130) innerhalb des Gehäuses (20) zur Aufnahme der Kreditkarteninformationen und der Produktidentifikationsinformationen und zur Steuerung des Druckermittels (90);

dadurch gekennzeichnet, daß
die tragbare Vorrichtung (10) weiterhin folgendes aufweist:

ein Mittel (110) zum Liefern mindestens der von dem Lesemittel (40) gelesenen Kreditkarteninformationen, um eine Transaktionszustimmung zu erhalten, wobei das Liefermittel (110) durch das Prozessormittel (90) gesteuert wird; und
ein Befestigungsmittel (146, 147) zum Befestigen des Gehäuses (20) an der Bekleidung eines Benutzers in einer betriebsbereiten Ausrichtung, die dem Benutzer einen freihändigen Scanbetrieb ermöglicht; und daß
das Scanmittel (70) von dem Gehäuse (20) getragen wird und in bezug auf dasselbe an einer Position so ausgerichtet ist, daß wenn sich das Gehäuse (20) in freihändiger, betriebsbereiter Ausrichtung befindet, der Scanstrahl im wesentlichen von den Augen des Benutzers wegprojiziert wird; und
das Druckermittel (90) von dem Gehäuse (20) getragen wird und in bezug auf dasselbe an einer Position so ausgerichtet ist, daß wenn sich das Gehäuse (20) in freihändiger, betriebsbereiter Ausrichtung befindet, der von dem Druckermittel (90) ausgedruckte Kundenbeleg für den Benutzer sichtbar ist.

2. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 1,
dadurch gekennzeichnet, daß
sie ein Anzeigemittel (80) zur wahlweisen Anzeige der Kreditkarteninformationen und der Produktidentifikationsinformationen aufweist, wobei das Anzeigemittel (80) an einer solchen Position von dem Gehäuse (20) getragen wird, daß wenn sich das Gehäuse (20) in freihändiger Scanbetriebsausrichtung befindet, das Anzeigemittel (80) für den Benutzer sichtbar ist.

3. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 1 oder 2, **dadurch gekennzeichnet**, daß sie ein Dateneingabemittel (50,60) zur Eingabe von Kunden- und Produktinformationen aufweist, wobei das Dateneingabemittel (50,60) durch das Gehäuse (20) getragen wird.
4. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 3, sofern abhängig von Anspruch 2, **dadurch gekennzeichnet**, daß ein Papieraustrittsmittel (92) in dem Gehäuse (20) zwischen dem Dateneingabemittel (50,60) und dem Anzeigemittel (80) enthalten und so angepaßt ist, daß es ein Ende einer aus dem Druckermittel austretenden Papierrolle aufnimmt.
5. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 4, **dadurch gekennzeichnet**, daß das Papieraustrittsmittel (92) eine an dem Gehäuse (20) befestigte Papieraustrittsabdeckung ist.
6. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 3, **dadurch gekennzeichnet**, daß das Gehäuse (20) eine untere Wand (22) aufweist, wobei mindestens ein Teil des Druckermittels (90) zwischen dem Dateneingabemittel (50,60) und der unteren Wand (22) angeordnet ist.
7. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach den Ansprüchen 1 bis 6, **dadurch gekennzeichnet**, daß das Gehäuse (20) ein herausnehmbares Papierhaltemittel (93) aufweist, das so angepaßt ist, daß es einen Papiervorrat für das Druckermittel (90) bereithält und die Einführung des Papiers in das Druckermittel (90) bewirkt.
8. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach den Ansprüchen 3 bis 7, sofern abhängig von Anspruch 3, **dadurch gekennzeichnet**, daß das Gehäuse (20) eine obere Wand (21) aufweist, wobei das Dateneingabemittel (50,60) eine durch die obere Wand (21) getragene Tastatur ist.
9. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach den Ansprüchen 2 bis 6, **dadurch gekennzeichnet**, daß das Gehäuse (20) eine obere Fläche (21), eine untere Fläche (22), ein erstes Ende (23) und ein zweites Ende (24) aufweist; das zweite Ende (24) einen ersten Teil und einen zweiten Teil sowie ein von dem Gehäuse (20) neben dem Druckermittel (90) getragenes Papierhaltemittel (93) aufweist.
10. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 9, **dadurch gekennzeichnet**, daß das Scanmittel (70) von dem Gehäuse getragen wird und dem Benutzer zugänglich ist, wenn das Gehäuse in einer betriebsbereiten Ausrichtung stabilisiert ist, die einen freihändigen Scanbetrieb ermöglicht, und daß es an den zweiten Teil des zweiten Endes (24) angrenzend angeordnet ist.
11. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach den Ansprüchen 9 oder 10, **dadurch gekennzeichnet**, daß das Druckerpapierhaltemittel eine im wesentlichen ebene Papierführung (102) aufweist, um das Papier in den Drucker einzuführen.
12. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Anspruch 11, sofern abhängig von Anspruch 3, **dadurch gekennzeichnet**, daß die Papierführung (102) auf dem tragbaren Papierhaltemittel neben dem Drucker (90) positioniert ist, und das Druckerpapierhaltemittel (93) so angepaßt ist, daß es eine Papierrolle zumindest teilweise unter dem Dateneingabemittel (50,60) hält.
13. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach Ansprüchen den 9 bis 12, **dadurch gekennzeichnet**, daß das Papierhaltemittel eine Platte (100) mit einem Umriss aufweist, der so beschaffen ist, daß sie form-schlüssig mit dem ersten Teil des zweiten Endes (24) des Gehäuses (20) und mit einem Teil der unteren Fläche (22) des Gehäuses (20) in der Nähe des zweiten Endes (24) in Eingriff gehen kann, wobei die Platte (100) so gekrümmt ist, daß sie eine im wesentlichen zylindrische Rolle eines Papiervorrates mit vorher ausgewähltem Maximaldurchmesser tragen kann.
14. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach den Ansprüchen 9 bis 13, sofern abhängig von Anspruch 2, **dadurch gekennzeichnet**, daß das Anzeigemittel (80) auf derjenigen Seite des Druckers angeordnet ist, die dem Druckerpapierhaltemittel (93) gegenüberliegt.
15. Tragbare Vorrichtung (10) zur Verarbeitung von Kassentransaktionen nach den Ansprüchen 9 bis 14, sofern abhängig von Anspruch 2, **dadurch gekennzeichnet**, daß

das Anzeigemittel (80) winklig nach oben, weg von dem Drucker (90) und im wesentlichen so zum Scannermittel (70) parallel ausgerichtet ist, daß wenn sich das Gehäuse in der betriebsbereiten Ausrichtung befindet, das Anzeigemittel (80) für den Benutzer sichtbar ist.

Revendications

1. Dispositif portable (10) pour le traitement de transactions au niveau de points de vente, le dispositif portable (10) comportant une pluralité de composants comprenant :

un moyen formant boîtier (20) ;
 un moyen formant lecteur (40) pour lire l'information d'une carte de crédit; ledit moyen formant lecteur étant porté par le moyen formant boîtier (20) ;
 un moyen formant dispositif d'exploration ou scanner (70) pour produire un faisceau d'exploration ou balayage et explorer ou scanner une information d'identification de produit à l'aide du faisceau;
 un moyen formant imprimante (90) pour imprimer un reçu pour le client;
 un moyen formant processeur (103) situé dans le boîtier (20) pour recevoir l'information de la carte de crédit et l'information d'identification de produit et commander le moyen formant imprimante (90);

caractérisé en ce que :
 le dispositif portable (10) comprend en outre :

un moyen (110) pour délivrer au moins l'information de carte de crédit lue par le moyen formant lecteur (40) pour l'obtention d'une approbation pour la transaction; le moyen de délivrance étant commandé par le moyen formant processeur (90); et
 des moyens de fixation (146,147) pour fixer le moyen formant boîtier (20) sur un utilisateur ou sur le vêtement d'un utilisateur avec une orientation opérationnelle qui permet une opération de balayage à mains libres par l'utilisateur; et en ce que
 le moyen formant scanner (70) est supporté par et est orienté par rapport au moyen formant boîtier (20) en un emplacement tel que, lorsque le moyen formant boîtier (20) est dans ladite orientation de fonctionnement avec balayage à mains libres, le faisceau de balayage est projeté nettement à distance des yeux de l'utilisateur; et
 le moyen formant imprimante (90) est porté par et est orienté par rapport au moyen formant boi-

tier (20) en un emplacement tel que lorsque le moyen formant boîtier (20) est situé dans ladite orientation de fonctionnement avec balayage à mains libres, le reçu du client imprimé par le moyen formant imprimante (90) est visible par l'utilisateur.

2. Dispositif portable (10) pour le traitement de transactions de points de vente, selon la revendication 1, comprenant en outre :
 un moyen d'affichage (80) pour afficher une information sélectionnée parmi ladite information de la carte de crédit et ladite information d'identification de produit, ledit moyen d'affichage (80) étant porté dans ledit boîtier (20) en un emplacement tel que lorsque ledit boîtier (20) est placé dans une orientation de fonctionnement avec balayage à mains libres, ledit moyen d'affichage (80) est visible de l'utilisateur.
3. Dispositif portable (10) pour le traitement de transactions de points de vente, selon l'une ou l'autre des revendications 1 et 2, comprenant en outre :
 des moyens (50,60) d'entrée de données pour introduire une information concernant le client et une information de produit, lesdits moyens (50,60) d'entrée de données étant portés par le boîtier (20).
4. Dispositif portable (10) pour le traitement de transactions de points de vente, selon la revendication 2 considérée en liaison avec la revendication 2, dans lequel un moyen (92) de sortie de papier est logé dans ledit boîtier (20) entre lesdits moyens (50,60) d'entrée de données et ledit moyen d'affichage (80) et est adapté pour recevoir une extrémité d'un rouleau de papier sortant du moyen formant imprimante.
5. Dispositif portable (10) pour le traitement de transactions de points de vente, selon la revendication 4, dans lequel le moyen (92) de sortie de papier est un capot de sortie du papier, fixé au boîtier (20).
6. Dispositif portable (10) pour le traitement de transactions de points de vente, selon la revendication 3, dans lequel le boîtier (20) comprend une paroi inférieure (22), et dans lequel au moins une partie du moyen formant imprimante (90) est intercalée entre les moyens (50,60) d'entrée de données et ladite paroi inférieure (22).
7. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 1 à 6, dans lequel le boîtier (20) comprend un moyen amovible (93) de support du papier dans l'imprimante, apte à retenir une réserve de papier pour ledit moyen formant imprimante (90) et pour

diriger le papier dans ledit moyen formant imprimante (90).

8. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 3 à 7 considérées en liaison avec la revendication 3, dans lequel le boîtier (20) comprend une paroi supérieure (21), et dans lequel les moyens (50,60) d'entrée de données sont un clavier porté par ladite paroi supérieure (21).

9. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 2 à 6, dans lequel :

ledit boîtier (20) comprend une surface supérieure (21), une surface inférieure (22), une première extrémité (23) et une deuxième extrémité (24);

la deuxième extrémité (24) possédant une première partie et une deuxième partie; et un moyen (93) de support du papier d'imprimante porté par le boîtier (20) au voisinage de l'imprimante (90).

10. Dispositif portable (10) pour le traitement de transactions de points de vente, selon la revendication 9, dans lequel :

le moyen formant scanner (70) est porté par le boîtier et est accessible à l'utilisateur lorsque ledit boîtier est stabilisé dans une orientation opérationnelle, qui permet l'opération de balayage à mains libres, et est adjacent à la seconde partie de la deuxième extrémité (24).

11. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 9 ou 10, dans lequel le moyen de support du papier d'imprimante inclut un guide-papier nettement plus plat (102) pour diriger le papier dans l'imprimante.

12. Dispositif portable (10) pour le traitement de transactions de points de vente, selon la revendication 11 considérée en liaison avec la revendication 3, dans lequel le guide-papier (102) est positionné sur le moyen portable de support du papier adjacent à l'imprimante (90), et le moyen (93) de support de papier d'imprimante est adapté pour retenir un rouleau de papier au moins en partie au-dessous des moyens (50,60) d'entrée de données.

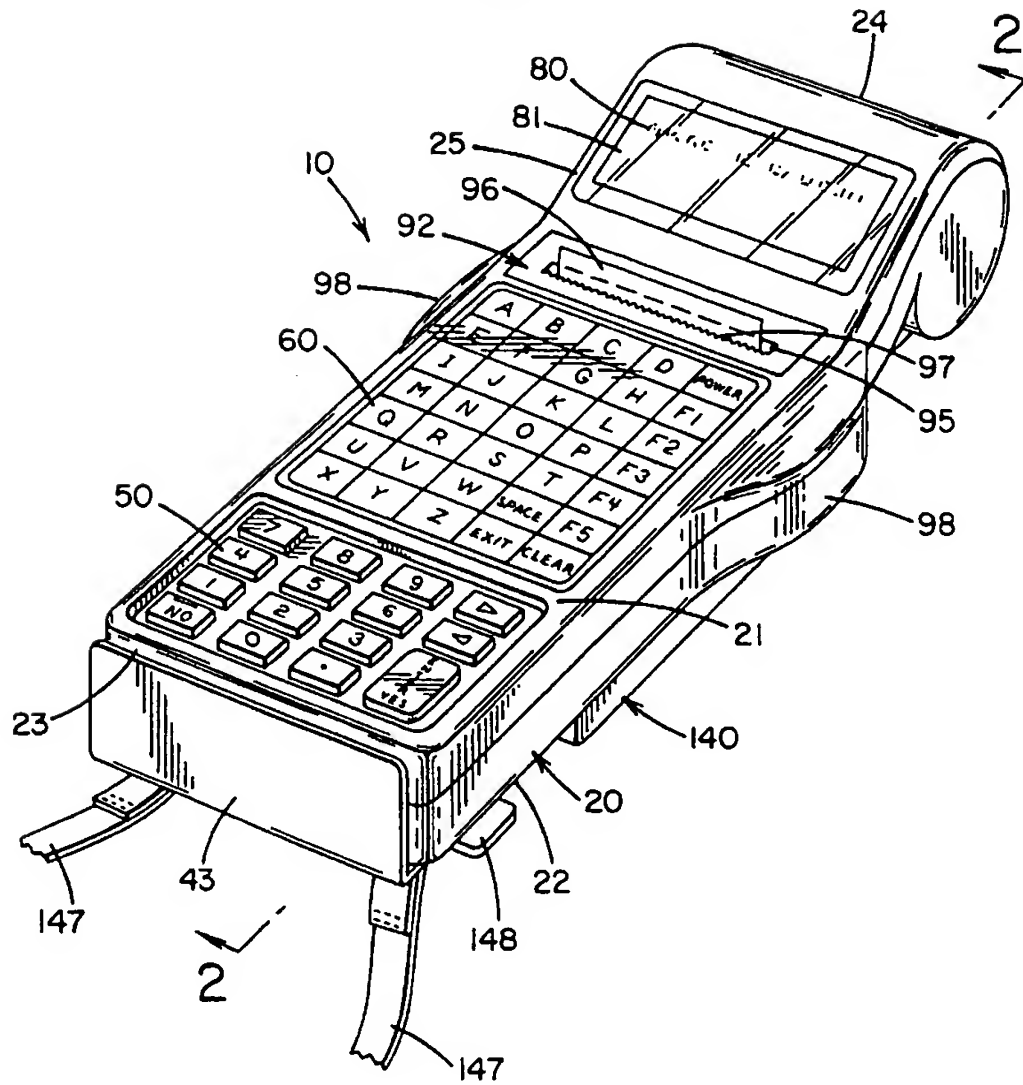
13. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 9 à 12, dans lequel le moyen de support du papier d'imprimante comprend une plaque (100) profilée de manière à s'engager de façon adaptée contre la première partie de ladite deuxième extré-

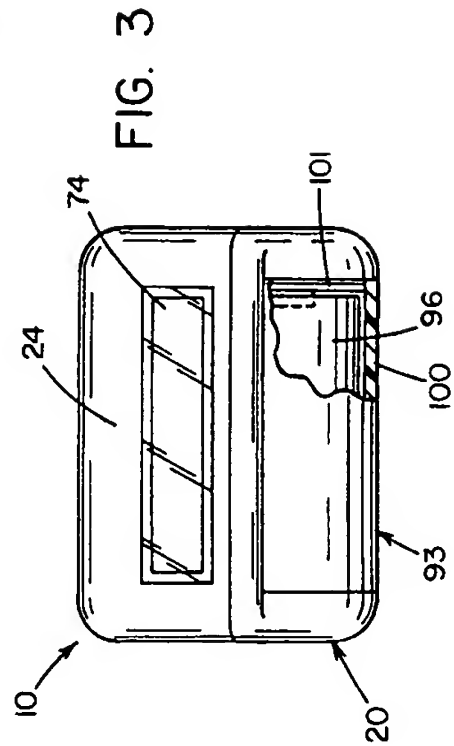
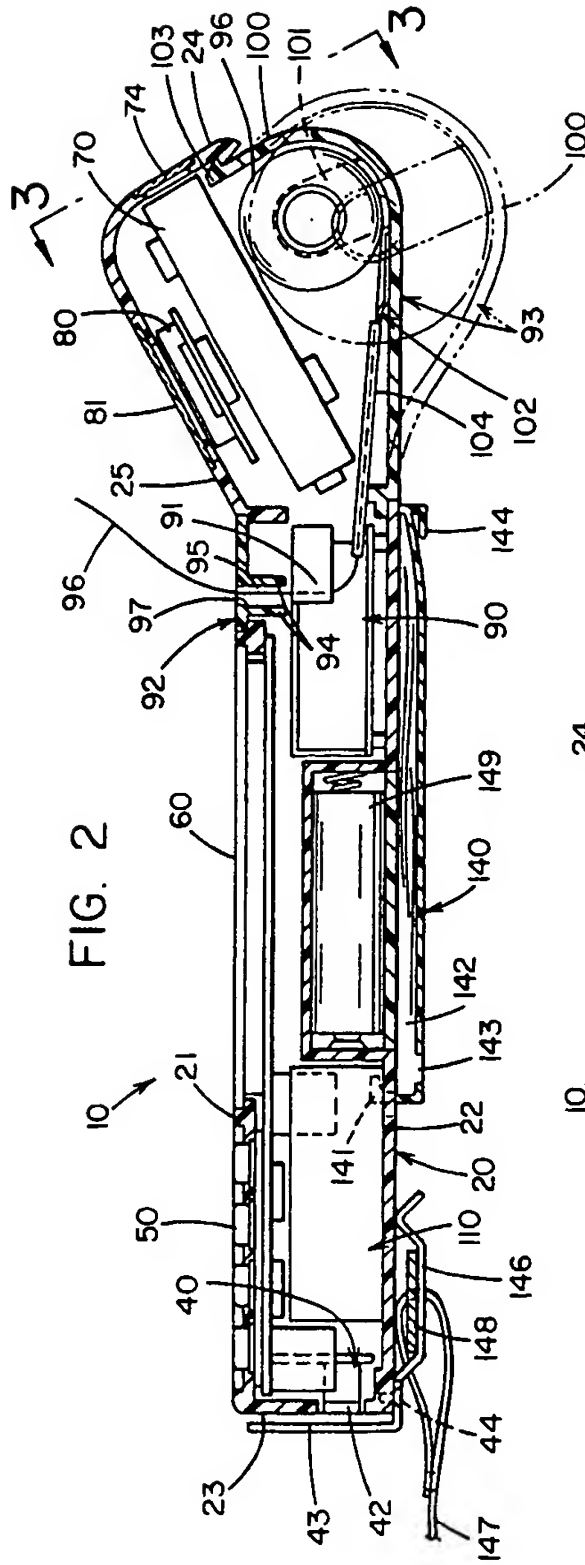
mité (24) dudit boîtier (20), et une partie de ladite surface inférieure (22) dudit boîtier (20) à proximité de ladite deuxième paroi (24), ladite plaque (100) étant incurvée de manière à porter un rouleau essentiellement cylindrique d'une réserve de papier ayant un diamètre maximum présélectionné.

14. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 9 à 13 considérées en liaison avec la revendication 2, dans lequel ledit moyen d'affichage (80) est positionné sur le côté de l'imprimante qui est situé à l'opposé du moyen (93) de support du papier d'imprimante.

15. Dispositif portable (10) pour le traitement de transactions de points de vente, selon les revendications 9 à 14 considérées en liaison avec la revendication 2, dans lequel le moyen d'affichage (80) est orienté angulairement vers le haut et à l'écart du moyen formant imprimante (90), et est essentiellement parallèle au moyen formant scanner (70) de sorte que lorsque le boîtier est dans l'orientation de fonctionnement, ledit moyen d'affichage (80) est visible par l'utilisateur.

FIG. 1





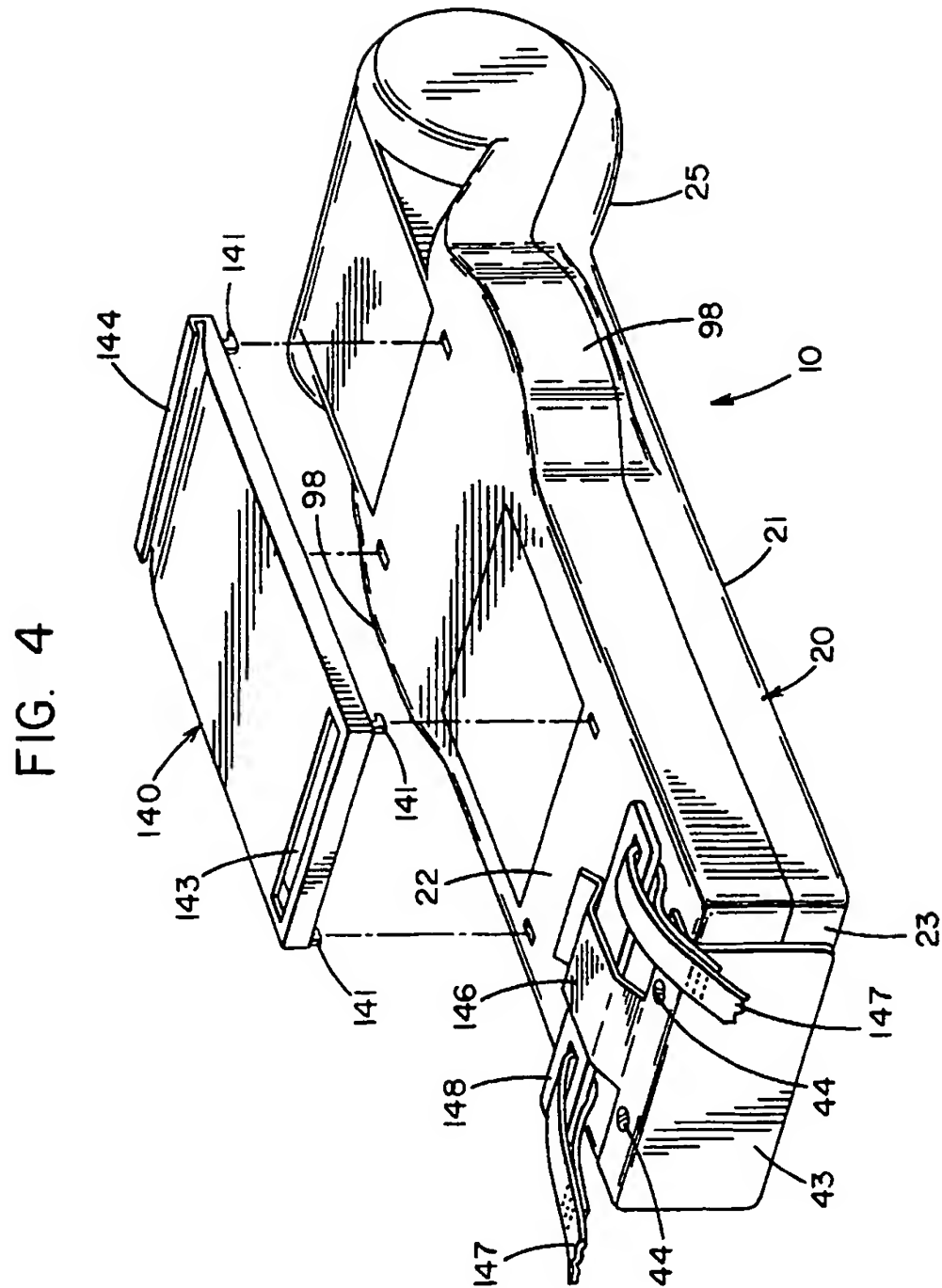


FIG. 5

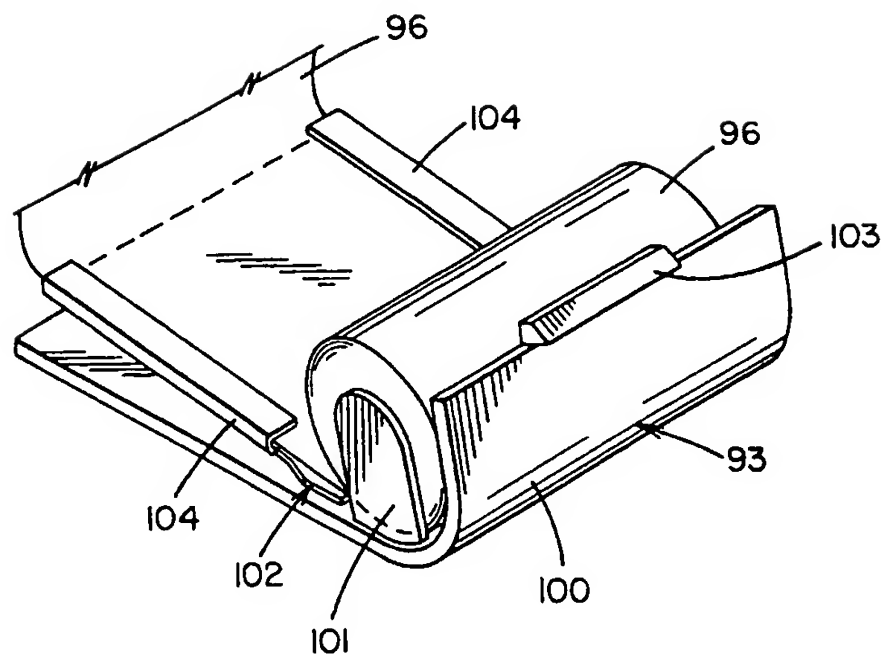


FIG. 6

